

CLAIMS:

1. A recombinant virus vector that originates in HHV-6 and includes an exogenous nucleotide sequence in a portion corresponding to at least one region selected from the group consisting of U2, U3, U4, U5, U6, U7, U8, U24, and U25 regions of HHV-6.

2. A recombinant virus vector as set forth in claim 1, wherein said portion exists between nucleotide numbers 9041 and 17446, or between nucleotide numbers 36250 and 37775 of a HHV-6 DNA sequence as represented by SEQ ID NO: 1.

3. A recombinant virus vector as set forth in claim 1, which comprises H6R28 virus or H6R24-25 virus.

4. A recombinant virus vector that originates in HHV-7 and includes an exogenous nucleotide sequence in a portion corresponding to at least one region selected from the group consisting of U2, U3, U4, U7, U8, U24, U24a, and U25 regions of HHV-7.

5. A recombinant virus vector as set forth in claim 4, wherein said portion exists between nucleotide numbers 10558 and 18483, or between nucleotide numbers 34744

and 36118 of a HHV-7 DNA sequence as represented by SEQ ID NO: 2.

6. A recombinant virus vector as set forth in claim 4, which comprises H7R28 virus or H7R24-25 virus.

7. A recombinant virus vector as set forth in claim 1 or 4, wherein the exogenous nucleotide sequence is a DNA sequence and/or RNA sequence.

8. A recombinant virus vector as set forth in claim 7, wherein the exogenous nucleotide sequence encodes at least one kind of substance selected from the group consisting of a bacterial artificial chromosome (BAC), cytokine gene, ribozyme, interference RNA, immunological co-stimulator molecule, signal transduction molecule, enzyme, and chemical attractant.

9. A recombinant virus vector as set forth in claim 7, wherein the exogenous nucleotide sequence is used for gene therapy of mammals.

10. A recombinant virus vector as set forth in claim 7, wherein the exogenous nucleotide sequence includes a nucleotide sequence that encodes a marker gene.

11. A producing method of a recombinant virus vector that originates in HHV-6, said method comprising the step of inserting an exogenous nucleotide sequence in a portion corresponding to at least one region selected from the group consisting of U2, U3, U4, U5, U6, U7, U8, U24, and U25 regions of HHV-6.

12. A producing method of a recombinant virus vector as set forth in claim 11, wherein, in the step of inserting an exogenous nucleotide sequence, the exogenous nucleotide sequence is inserted between nucleotide numbers 9041 and 17446, or between nucleotide numbers 36250 and 37775 of a HHV-6 DNA sequence as represented by SEQ ID NO: 1.

13. A producing method of a recombinant virus vector as set forth in claim 11, wherein, in the step of inserting an exogenous nucleotide sequence, homologous recombination is carried out between a HHV-6 DNA sequence and a DNA sequence that is amplified with a set of primers of sequences represented by SEQ ID NO: 3-4 and SEQ ID NO: 5-6, or a set of primers of sequences represented by SEQ ID NO: 36-37 and SEQ ID NO: 38-39.

14. A producing method of a recombinant virus vector that originates in HHV-7,

said method comprising the step of inserting an exogenous nucleotide sequence in a portion corresponding to at least one region selected from the group consisting of U2, U3, U4, U7, U8, U24, U24a, and U25 regions of HHV-7.

15. A producing method of a recombinant virus vector as set forth in claim 14, wherein, in the step of inserting an exogenous nucleotide sequence, the exogenous nucleotide sequence is inserted between nucleotide numbers 10558 and 18483, or between nucleotide numbers 34744 and 36118 of a HHV-7 DNA sequence as represented by SEQ ID NO: 2.

16. A producing method of a recombinant virus vector as set forth in claim 14, wherein, in the step of inserting an exogenous nucleotide sequence, homologous recombination is carried out between a HHV-7 DNA sequence and a DNA sequence that is amplified with a set of primers of sequences represented by SEQ ID NO: 30-31 and SEQ ID NO: 34-35, or a set of primers of sequences represented by SEQ ID NO: 40-41 and SEQ ID NO: 42-43.

17. A producing method of a recombinant vector as set forth in claim 11 or 14, wherein, in the step of inserting an exogenous nucleotide sequence, the exogenous nucleotide sequence is inserted inside a normal cell and/or an umbilical cord blood cell.

18. A transforming method of a host cell, wherein the method transforms a host cell of a mammal with a recombinant virus vector of claim 1 or 4,

said method comprising the step of transforming, with the recombinant virus vector, a host cell of at least one kind of mammal selected from the group consisting of a human, a non-human primate, and a host that is open to HHV-6 or HHV-7 infection.

19. A transforming method of a host cell as set forth in claim 18, wherein, in said step of transforming a host cell, the method transforms, with the recombinant virus vector, at least one kind of host cell selected from the group consisting of a T cell, macrophage, peripheral-blood mononuclear cell, blood stem cell, liver cell, vascular endothelial cell, fibroblasts, glial cell, astrocyte, CD4 positive T cell, CD8 positive T cell, dendritic cell, and natural killer cell.

20. A transformed host cell, which is obtained by the transforming method of claim 18 or 19.

21. A transformed host cell as set forth in claim 20, which is used for gene therapy of mammals.

22. A transformed host cell as set forth in claim 21, wherein the gene therapy is (i) for preventing human immunodeficiency virus (HIV) infection of a compromised cell caused by HIV, and/or (ii) for immunotherapy of cancer.

23. A transformed host cell as set forth in claim 21, wherein the host cell is derived from a mammal of the kind subjected to the gene therapy.

24. A gene therapy method for non-human mammals, comprising the step of administering a transformed cell of any one of claims 20 through 23 to the mammal.

25. A gene therapy method for non-human mammals, comprising the step of transforming, with a recombinant virus vector of claim 1 or 4, a host cell of a mammal in vivo at a multiplicity of infection (MOI) of 0.01 to 20.

26. A gene therapy method as set forth in claim 24 or 25, comprising the step of expressing a gene encoded by the exogenous nucleotide sequence included in the recombinant virus vector.